CLAIMS

1. A flame retardant polymer composition comprising a polymer and a particulate clay mineral distributed in the polymer composition at a particle number per unit volume of at least about 1 particle per 100 μm^3, provided that the clay mineral present at the said particle number per unit volume is not an organomontmorillonite.

2. A composition according to claim 1, wherein the particle number per unit volume in the polymer composition is at least about 10 particles per 100 μm^3.

3. A composition according to claim 1 or 2, wherein the clay mineral comprises a hydrous kaolin.

4. A composition according to claim 1 or 2, wherein the clay mineral comprises a partially calcined kaolin.

5. A composition according to claim 1 or 2, wherein the clay mineral comprises a fully calcined kaolin.

6. A composition according to claim 1 or 2, wherein the clay mineral comprises a talc.

7. A composition according to claim 1 or 2, wherein the clay mineral is any combination of a hydrous kaolin, partially calcined kaolin, a fully calcined kaolin and a talc.

8. A composition according to any one of claims 3 to 5, wherein the particulate kaolin clay has a mean equivalent particle diameter less than or equal to about 4 μm and a particle shape factor which is greater than about 10.

9. A flame retardant polymer composition comprising a polymer and a particulate kaolin clay having a mean equivalent particle diameter less than or equal to about 4 μm and a particle shape factor which is greater than about 10.

10. A composition according to claim 8 or claim 9, wherein the mean equivalent particle diameter is less than or equal to about 3μm.

11. A composition according to any one of claims 8 to 10, wherein the mean equivalent particle diameter is between about 0.1 and about 2μm.

12. A composition according to any one of claims 8 to 10, wherein the mean equivalent particle diameter is between about 0.5 and about 2μm.

13. A composition according to any one of claims 8 to 10, wherein the mean equivalent particle diameter is between about 0.5 and about 1.5μm.

14. A composition according to any one of claims 8 to 13, wherein the shape factor is between about 10 and about 150.

15. A composition according to any one of claims 8 to 13, wherein the shape factor is greater than about 30.

16. A composition according to claim 15, wherein the shape factor is up to about 150.

17. A composition according to any one of the preceding claims, further including one or more additional flame retardant component.

18. A composition according to any one of claims 1 to 16, further including one or more non-kaolin flame retardant component.

19. A composition according to claim 17 or claim 18, wherein the flame retardant component is selected from phosphorus-containing compounds, boron-containing

compounds, metal salts, metal hydroxides, metal oxides, hydrates thereof, organoclays (including ion-exchanged and any other modified organoclays), halogenated hydrocarbons, and any combination thereof.

20. A composition according to claim 19, wherein the flame retardant component comprises alumina trihydrate (ATH), boric acid, a metal borate or a combination thereof.

21. A composition according to claim 18, 19 or 20, wherein the particulate clay mineral or particulate kaolin clay is present in an amount of at least about 50% of the total weight of particulate clay mineral or particulate kaolin clay and flame retardant component.

22. A composition according to any one of the preceding claims, wherein the polymer comprises a thermoplastic polymer.

23. A composition according to any one of claims 1 to 21, wherein the polymer comprises a thermoset polymer.

24. A composition according to any one of claims 1 to 21, wherein the polymer is selected from polyolefins, polycarbonate, polystyrene, polyester, acrylonitrile-butadiene-styrene copolymer, nylons, polyurethane, ethylene-vinylactetate polymers, and any mixture thereof.

25. A composition according to claim 24, wherein the polyolefin comprises polyethylene or polypropylene.

26. A composition according to any of the preceding claims, further comprising a silane.

27. A particulate filler material for a flame retardant polymer composition, the filler material comprising a particulate non-kaolin flame retardant and a particulate kaolin clay, wherein the particulate kaolin clay has a mean equivalent particle

diameter less than or equal to about 4 μm and a particle shape factor which is greater than about 10.

28. A particulate filler material according to claim 27, wherein the shape factor is greater than about 30.

29. A particulate filler material according to claim 27 or claim 28, wherein the non-kaolin flame retardant component is selected from phosphorus-containing compounds, boron-containing compounds, metal salts, metal hydroxides, metal oxides, hydrates thereof, organoclays (including ion-exchanged and any other modified organoclays), halogenated hydrocarbons, and any combination thereof.

30. A particulate filler material according to any one of claims 27 to claim 29, which consists essentially of ATH and the particulate kaolin, and optionally one or more other non-kaolin flame retardant component, with less than about 10% by weight of other component(s).

31. A particulate filler material according to any one of claims 27 to 30, wherein the particulate kaolin is as defined in any one of claims 3 to 6 and 8 to 16.

32. A particulate filler material for a flame retardant polymer composition, the filler material comprising a particulate non-clay mineral flame retardant and a particulate non-kaolin clay mineral, wherein the particulate non-kaolin clay mineral has a mean equivalent particle diameter less than or equal to about 4 μm and a particle shape factor which is greater than about 10.

33. A particulate filler material according to claim 32, wherein the non-clay mineral flame retardant component is selected from phosphorus-containing compounds, boron-containing compounds, metal salts, metal hydroxides, metal oxides, hydrates thereof, halogenated hydrocarbons, and any combination thereof.

34. A particulate filler material according to claim 32 or claim 33, which consists essentially of ATH and the particulate non-kaolin clay mineral, and optionally one or

more other non-clay mineral flame retardant component, with less than about 10% by weight of other component(s).

35. A particulate filler material according to any one of claims 31 to 34, wherein the particulate non-kaolin clay mineral is a talc.

36. A particulate filler material according to claim 35 further comprising an organoclay.

37. A process for forming the polymer composition as claimed in any one of claims 1 to 26, which comprises mixing the components of the composition, the polymer component being present as liquid or particulate solid, optionally as one or more precursor(s) of the polymer component.

38. A mixture of a particulate filler material as claimed in any one of claims 27 to 36 and a polymer or a precursor thereof in the form of a liquid or particulate solid.

39. An article formed from a flame retardant polymer composition as claimed in any one of claims 1 to 26.

40. A sheath, coating or housing for an electrical product, formed from a polymer composition as claimed in any one of claims 1 to 26.